

WHAT IS CLAIMED IS:

1. A process for the production of a two-component coating mixture having the following steps:
mixing of a first coating component and a second coating component in a mixer to
5 yield the two-component coating mixture, and
homogenizing the two-component coating mixture using a homogeniser, wherein
at least a portion of the two-component coating mixture is homogenised
repeatedly in succession in the homogeniser.
- 10 2. The process according to Claim 1, wherein the two coating components are
supplied to the mixer separately from one another at a pressure of at most 2.5
MPa.
3. The process according to Claim 1, wherein a portion of the two-component
15 coating mixture from an outlet of the homogeniser is recirculated to an inlet of the
homogeniser.
4. The process according to Claim 1, wherein a first coating component is an
aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and a
20 second coating component contains polyisocyanate.
5. The process according to Claim 1, wherein, between the mixer and the
homogeniser, the two-component coating mixture exhibits a mass flow rate of
from 50 g/minute to 3000 g/minute.
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6. The process according to Claim 1, wherein the homogeniser is a jet
disperser.

7. The process according to Claim 1, wherein
a first coating component is supplied to the mixer by a first pump, and/or
a second coating component is supplied to the mixer by a second pump, and/or
the two-component coating mixture is delivered by a third pump from the mixer to
5 the homogeniser.
8. The process according to Claim 7, wherein the third pump is operated at a
higher delivery capacity than the first pump and the second pump together.
- 10 9. The process according to Claim 7, wherein at least one of the first pump,
the second pump and the third pump is a gear pump.
10. An apparatus for the production of a two-component coating mixture,
comprising
15 a mixer for the production of the two-component coating mixture capable of
mixing a first coating component and a second coating component, and
a homogeniser capable of homogenizing the two-component coating mixture, the
homogeniser being arranged downstream from the mixer,
wherein
20 a return line, which branches off in an output zone of the homogeniser and opens
into an input zone of the homogeniser, in order to recirculate a portion of the two-
component coating mixture homogenised by the homogeniser for
rehomogenisation.
- 25 11. The apparatus according to Claim 10, wherein
a first pump for delivering the first coating component, the first pump being
connected via a first feed line with the mixer, and
a second pump for delivering the second coating component, the second pump
being connected via a second feed line with the mixer, and
30 a third pump for delivering the two-component coating mixture, the third pump
being arranged between the mixer and the homogeniser.

12. The apparatus according to Claim 11, wherein the third pump has a greater delivery capacity than the first pump and/or the second pump.
13. The apparatus according to Claim 11, wherein the first pump and/or the second pump and/or the third pump has a delivery pressure which amounts to at most 2.5 MPa.
14. The apparatus according to Claim 11, wherein the first pump and/or the second pump and/or the third pump is a gear pump.
15. The apparatus according to Claim 11, wherein a filter is arranged in the first feed line and/or in the second feed line and/or in the third feed line upstream from the mixer.
16. The apparatus according to Claim 10, wherein the homogeniser is a jet disperser.
17. The apparatus according to Claim 10, wherein the first coating component is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
18. The apparatus according to Claim 11; wherein the return line opens into a zone between the mixer and the third pump.
19. The apparatus according to Claim 10, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
20. The apparatus according to Claim 10, wherein the mixer comprises a controllable valve which controls a feed stream of the first coating component and/or a feed stream of the second coating component and/or a discharge of the two-component coating mixture.

21. The apparatus according to Claim 10, wherein at least one bypass line is provided in order to bypass the mixer and/or the homogeniser during rinsing operation.
- 5 22. The apparatus according to Claim 21, wherein a controllable valve is arranged in the bypass line.
23. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 1.
- 10 24. The process according to Claim 1, wherein the two-component coating mixture includes an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms and a polyisocyanate and forms an aqueous polyurethane coating emulsion.
- 15 25. The process according to Claim 2, wherein a portion of the two-component coating mixture from an outlet of the homogeniser is recirculated to an inlet of the homogeniser.
- 20 26. The process according to Claim 8, wherein at least one of the first pump, the second pump and the third pump is a gear pump.
27. The apparatus according to Claim 10, wherein the two-component coating mixture includes an aqueous binder dispersion comprising isocyanate-reactive
25 hydrogen atoms and a polyisocyanate, and forms an aqueous two-component polyurethane coating emulsion.
28. The apparatus according to Claim 12, wherein the first pump and/or the second pump and/or the third pump has a delivery pressure which amounts to at
30 most 2.5 MPa.

29. The apparatus according to Claim 12, wherein the first pump and/or the second pump and/or the third pump is a gear pump.

30. The apparatus according to Claim 13, wherein the first pump and/or the second pump and/or the third pump is a gear pump.

31. The apparatus according to Claim 28, wherein the first pump and/or the second pump and/or the third pump is a gear pump.

32. The apparatus according to Claim 12, wherein a filter is arranged in the first feed line and/or in the second feed line and/or in the third feed line upstream from the mixer.

33. The apparatus according to Claim 13, wherein a filter is arranged in the first feed line and/or in the second feed line and/or in the third feed line upstream from the mixer.

34. The apparatus according to Claim 14, wherein a filter is arranged in the first feed line and/or in the second feed line and/or in the third feed line upstream from the mixer.

35. The apparatus according to Claim 11, wherein the homogeniser is a jet disperser.

36. The apparatus according to Claim 12, wherein the homogeniser is a jet disperser.

37. The apparatus according to Claim 13, wherein the homogeniser is a jet disperser.

38. The apparatus according to Claim 14, wherein the homogeniser is a jet disperser.

39. The apparatus according to Claim 15, wherein the homogeniser is a jet disperser.
40. The apparatus according to Claim 11, wherein the first coating component
5 is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
41. The apparatus according to Claim 12, wherein the first coating component
10 is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
42. The apparatus according to Claim 13, wherein the first coating component
15 is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
43. The apparatus according to Claim 14, wherein the first coating component
is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
- 20 44. The apparatus according to Claim 15, wherein the first coating component is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
45. The apparatus according to Claim 16, wherein the first coating component
25 is an aqueous binder dispersion comprising isocyanate-reactive hydrogen atoms, and the second coating component contains polyisocyanate.
46. The apparatus according to Claim 12, wherein the return line opens into a zone between the mixer and the third pump.
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47. The apparatus according to Claim 13, wherein the return line opens into a zone between the mixer and the third pump.

48. The apparatus according to Claim 14, wherein the return line opens into a zone between the mixer and the third pump.
49. The apparatus according to Claim 15, wherein the return line opens into a
5 zone between the mixer and the third pump.
50. The apparatus according to Claim 16, wherein the return line opens into a zone between the mixer and the third pump.
- 10 51. The apparatus according to Claim 17, wherein the return line opens into a zone between the mixer and the third pump.
52. The apparatus according to Claim 11, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
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53. The apparatus according to Claim 12, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
54. The apparatus according to Claim 13, wherein the mixer and/or the
20 homogeniser comprises a rinsing agent connection.
55. The apparatus according to Claim 14, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
- 25 56. The apparatus according to Claim 15, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
57. The apparatus according to Claim 16, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
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58. The apparatus according to Claim 17, wherein the mixer and/or the homogeniser comprises a rinsing agent connection.

59. The apparatus according to Claim 18; wherein the mixer and/or the homogeniser comprises a rinsing agent connection.
60. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 2.
61. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 3.
62. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 4.
63. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 5.
64. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 6.
65. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 7.
66. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 8.
67. A substrate coated with a coating layer comprising the two-component coating mixture provided by the process according to Claim 9.